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CLAIMS

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We claim:

Technology Center 2100

1.   A bus controller connectable to a data communication bus, the bus controller comprising:

5   a memory circuit configured to store a plurality of messages for transmission; and

arbitration logic associated with the memory circuit and configured to prioritize messages of the plurality of messages based on a bitwise comparison of the messages of the messages prior to transmission of

10   any message of the plurality of messages.

2.   The bus controller of claim 1 wherein the arbitration logic is further configured to compare respective bits of two or more messages and determine a message priority based on the comparing.

15

3.   The bus controller of claim 1 further comprising:

a transmission circuit configured to transmit the prioritized messages on the data communication bus.

20   4.   The bus controller of claim 3 wherein the transmission circuit is configured to transmit a prioritized message so long as the prioritized message has a higher priority than any other message transmitted on the data communication bus.

25   5.   The bus controller of claim 4 further comprising a receive circuit configured to detect data state of bits of other messages transmitted on the data communication bus.

6.   A Controller Area Network (CAN) bus controller comprising:

a plurality of transmit registers, each register configured to store a

respective message for transmission from the CAN bus controller;

arbitration logic configured to select a respective message for first

transmission; and

a transmission control circuit configured to transmit the selected respective

message on a CAN bus.

7.   The CAN bus controller of claim 1 wherein the transmission control

circuit is further configured to transmit on the CAN bus bits of the selected

respective message until transmission of another message of higher priority is

detected.

8.   A method for controlling message transmission from a Controller

Area Network (CAN) bus controller to a CAN bus, the method comprising:

comparing a plurality of messages for transmission;

determining a priority for transmission of the messages for transmission;

and

transmitting the messages according to the priority.

9.   The method of claim 8 wherein determining the priority for

transmission comprises determining the priority based on content of the messages

for transmission.

10.   The method of claim 8 wherein determining the priority for

transmission comprises:

performing a bitwise comparison of each message; and

assigning priority based on results of the bitwise comparison.

11.   The method of claim 8 wherein determining the priority for

transmission comprises:

comparing each bit of a predetermined subset of bits of a first message for

transmission with each bit of a matching predetermined subset of

bits for a second message for transmission; and

selecting a first message for transmission based on the comparison.

12. The method of claim 11 further comprising:

repeating the comparison between each or the first message and the second

message and remaining messages to be transmitted; and

ordering the messages to be transmitted based on the comparison.

13. A communication controller comprising:

a memory circuit;

a processor operable in response to data and instructions stored in the

memory circuit;

a first communication circuit under control of the processor for

communicating messages between the communication controller

and a first remote device on a first data communication bus

according to a first data communication standard, the first

communication circuit including

a plurality of transmit registers, each transmit register configured to

store a respective message for transmission from the

communication controller,

arbitration logic configured to select a respective message for first

transmission based on a bit-by-bit comparison of the

plurality of messages, and

a transmission control circuit configured to transmit the selected

respective messages; and

a second communication circuit under control of the processor for

communicating between the communication controller and a second

remote device on a second data communication bus according to a

second data communication standard which is different from the

first data communication standard.

14.   The communication controller of claim 13 wherein the transmission

5   control circuit is configured to format transmitted messages according to the

Controller Area Network (CAN) standard.

10